

U.S.S.N. 10/816,089

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Remarks

Thorough examination by the Examiner is noted and appreciated.

The claims have been amended to achieve indicated allowable subject matter.

Support for the amendments is found in the original claims.
No new matter has been added.

Claim Objections

Claim 53 has been amended to overcome Examiners objection to duplicate claims.

Claim Rejections under 35 USC 103

1. Claim 1-2, 40-42, 47, 48, 52, and 53 stand rejected under 35 USC 103(a) as being unpatentable over Mikagi (US 6566254) in view of Miyanaga (US 6,897,526).

Mikagi discloses an improved method for forming self-aligned silicides over source/drain regions (see Abstract) to avoid the "bite

U.S.S.N. 10/816,089

of silicide' where silicide penetrates beneath the sidewalls (see col 2, lines 26-39). Mikagi **overcomes the problem of silicide penetration under sidewalls** by forming a first metal film over the source/drain regions (diffusion layers) followed by a first anneal process; and **then removing part of the sidewalls to form a gap with the first metal film**; and then performing a second annealing process (see col 2, lines 58-65; col 3, lines 19-24; Mikagi **disclose silicon oxide sidewalls** (col 4, lines 13-15) where portions are removed in an anisotropic etch process (col 4, lines 53-55) following deposition of a metal (and first metal anneal) only on exposed silicon areas (col 4, lines 23-25) to form a gap between the silicide and the edges of the sidewalls (col 4, lines 55-57; Figure 3D). A second annealing process is then carried out to complete formation of the silicide (Figure 3E; col 5, lines 1-18).

On the other hand, Miyanaga disclose a method for forming a **punch through stopper under a gate electrode** by introducing impurities into the substrate along the $\langle 110 \rangle$ axis and underlying the gate electrode (see Abstract). Miyanaga discloses that the $\langle 100 \rangle$ axis direction agrees with the direction connecting the source and drain. Miyanaga also **discloses conventional oxide spacers** overlying the SDE (LDD) region (see Figure 5C; col 8, lines 60-67); Fig. 6A).

U.S.S.N. 10/816,089

Miyanaga discloses forming **oxide spacers** (item 417, Fig 5C; col 8, lines 60-63) by etchback following formation of source/drain regions (see Figure 5B) adjacent the gate structure where the spacers are then used as a mask in forming the source and drain regions at a higher doping (see Figure 6A) and where the entire LDD region (SDE region) underlies the oxide spacers (see e.g., col 8, lines 45-67).

There is no apparent motivation to combine the teachings of Mikagi and Miyanaga other than Applicants disclosure. Miyanaga nowhere discloses or suggests forming a slim spacer (thinned spacer) or salicide, and Mikagi nowhere discloses or suggests the orientation of the substrate or the formation of a punch-through stopper.

Nevertheless, even assuming *arguendo* a proper motivation for combining the teachings of Mikagi and Miyanaga, such combination fails to produce Applicants disclosed and claimed invention.

"Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

U.S.S.N. 10/816,089

Conclusion

Applicants gratefully acknowledge allowance of claims 21-30 and 44-46.

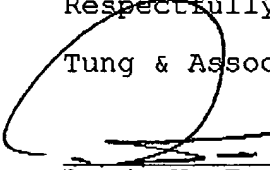
Applicants also gratefully acknowledge indication of allowable subject matter in claims 5 and 51. Claims 1 and 47 has been amended to achieve allowable subject matter as indicated.

Based on the foregoing, Applicants respectfully submit that all the Claims are now in condition for allowance. Such favorable action by the Examiner at an early date is respectfully solicited.

In the event that the present invention as claimed is not in condition for allowance for any reason, the Examiner is respectfully invited to call the Applicants' representative at his Bloomfield Hills, Michigan office at (248) 540-4040 such that necessary action may be taken to place the application in a condition for allowance.

Respectfully submitted,

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